

# bc potters

April 2003

Volume 39 Number 4

*Judi Dyelle*

*The roots of my work come from my studies in Oriental ceramics.*

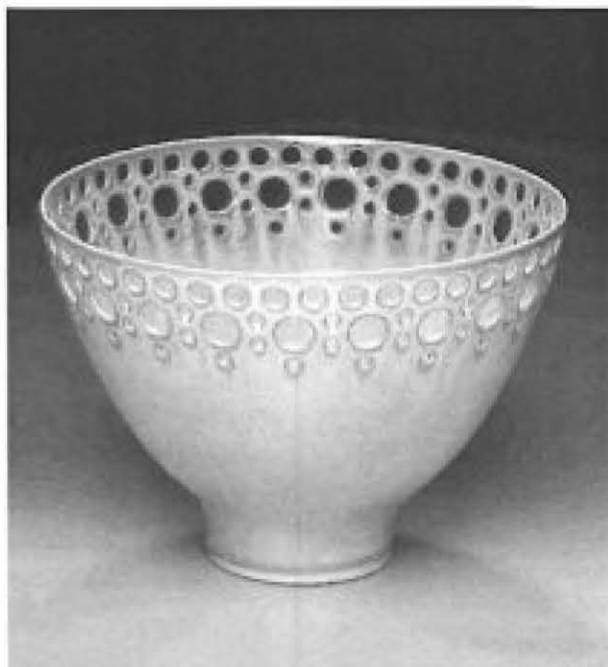
Forty-two years ago I enrolled in art school determined to be a great painter. Well, I am not, but I am trying to be a great potter. It has been a long and somewhat slow road as I experienced life along the way. Moving back and forth across the country, having children and running a ceramic department certainly took a chunk out of my productivity. I am settled now and feel at peace with what I do and where I am. All of my life's experiences have played a part in what I produce. I definitely have two sides to my work. One is very feminine, the other very masculine. This is who I am and it is important for me to express this in my work.

The roots of my work come from my studies in Oriental ceramics. All through the five years that I spent at the Ontario College of Art, I focused on the arts of the Orient. I was an honours graduate and received a Canada Council Grant to study in Japan with Tatsuzo Shimaoka. Spending a year and a half there, I feel that this was the most influential experi-

ence of my life. Not only did I get to see all the pots that I had only known from photographs, but also I got a real sense of the tradition behind the making of those pots. The fact that the wares were famous in a certain area due to the type of clay that they dug and the materials that they used in the glazes from the same region made a lasting impression on me.

I enjoy testing local clays, mainly for their glaze ability. At the moment, I am very excited by a clay from the Sooke region. I have been using a clay from the Kamloops area as a base in three of my glazes. The original glaze is a lovely rich, red brown with crystalline properties and I have then taken this and added other metallic oxides to produce two black glazes. Since I have always had a fascination with black glazes, these have finally given me the surface that I have been looking for ever since I was inspired by some black iron work I saw in a small village in northern Japan.

see Judi Dyelle page 10



Above: **Judi Dyelle Paracus Vase, Kamloops Series 2002**, wheel thrown and assembled, reduction, high fire porcelain, propane gas kiln, cone 9 (1280°C), local earthenware slip glaze with oxides, sponged decoration, 29.0 cm W x 13.5 cm H.  
Photo: Janet Dwyer

Left: **Judi Dyelle Bowl, Crystal Pink Series 2002**, wheel thrown, pierced bowl, reduction, high fire porcelain, propane gas kiln, cone 10 (1305°C), crystalline glaze, 17.4 cm W x 12.2.0 cm H.  
Photo: Janet Dwyer



## From the Oven to Kiln

Tuesday April 29  
6:30PM

Performance Works on Granville Island  
Tickets \$45 at the Gallery of BC Ceramics

The North-West Ceramics Foundation presents the return of this fabulous event. Enjoy an evening of fine dining, a silent auction featuring fine craft and a sumptuous dessert served on a handcrafted plate, which is yours to keep.

Tickets are available through the Gallery of BC Ceramics. Telephone purchases of tickets may be made through the Gallery of BC Ceramics using any major credit card. Contact the Gallery 604.669.5645.

The NWCF is a registered charitable organization. Proceeds from the event support education in the ceramics arts.



The Maureen Wright Scholarship honours the self-taught Vancouver potter, Maureen Wright. The scholarship awards \$200 towards any short-term educational activity. Applications accepted anytime.

Applications and information available by writing to the North-West Ceramic Foundation, 1359 Cartwright St, Granville Island, Vancouver, BC, V6H 3R7 or see website [www.bcpotters.com](http://www.bcpotters.com).

## Call for Plates

The Oven to Kiln event is in need of plate makers. We are requesting donations of dessert plates of 9" for our designer dessert to be served after a fine dinner. Plates may be delivered to the Gallery of BC Ceramics by April 1. All proceeds from this event will go to education in the ceramic arts. For further information, call Rachelle at 604.874.8518.

## Woodfire and Salt Glaze Workshop

Two weeks with Micki Schloessing and Richard Dewar  
Arrive Saturday 23 August PM. Depart Sunday 7 September AM  
at Micki's studio on the Gower Peninsula in South Wales, UK

The focus of the workshop is packing and firing Micki's wood kiln. The main chamber is 2 cubic metres. The work in this chamber is salted and the resulting glaze is a combination of the flyash and the salt vapour. There is plenty of scope for exploring slips and bodies for colour and texture. The firebox acts also as a small chamber and produces heavily wood ashed pieces. Beyond the main chamber is a small collection chamber; this reaches low stoneware temperatures and receives a residual salting. Like the firebox it measures about half a cubic metre. It's a versatile kiln and offers a lot of potential for learning. However the packing and firing of the kiln is both time consuming and exacting, so we want students to be prepared and keen to be fully engaged in this process.

Stoneware clays and slips will be available and students will also be encouraged to bring along some biscuit pieces of their own for possible inclusion in the firing.

The workshop will take the following form:

1. Making and slipping - 5 days
2. Drying work, preparing and packing the kiln - 4 days
3. Firing and cooling - 3 days
4. Unpacking the firing, sorting the pots and having a detailed appraisal of the results - 2 days.

Cost of course per person, including morning coffee, afternoon tea, midday meals, all tuition, materials, woodfiring with salt, plus your finished pots is £650.

More details and information:

Micki Schloessing, Bridge Pottery, Cheriton, Gower, Swansea SA3 1BY, Wales UK. Tel: +44 (0)1792 386499. Email <micki@btconnect.com>

Richard Dewar, Poterie, La Rouaudais, 44460 Avesac, France  
Tel: +33 (0)299 910305. Email <richard.dewar@wanadoo.fr>

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**Newsletter Submission Deadline** is the 8th of the previous month.

Send to Guild, address on page 12 or <[newsletter@bcpotters.com](mailto:newsletter@bcpotters.com)>.



### April Tools Event

Thursday April 10  
8:00PM

Kwantlen College,  
12766 72 Ave, Surrey  
Ceramics Lab

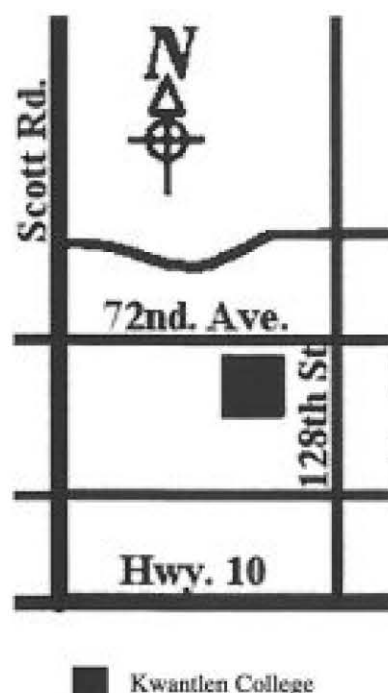
The Potters Guild of BC and Fraser Valley Potters Guild invite members and non-members to an April Tools Event. This is the first in a series of regularly scheduled activities for knowledge sharing.

The April Tool Event will be an evening to discuss, share and discover how other potters make and use their favourite tools. From homemade slab rollers to extruders, from trimming tools to ribs, bring your tool box and share with others. Everyone will be sent a copy of where to find and how to make and use 10 tools.

Co-sponsored by Potters Guild of BC and Fraser Valley Potters Guild.

Members free; non-members by donation.

Information: Lewis Kennett, 604.469.2252  
<\_kennett@telus.net>



■ Kwantlen College

## President's Report Family Matters Update

The Interim Board is well encouraged by feedback so far and there's such a positive sense that we're going to come through this sticky patch with everyone's support stronger and more secure — ready to enter our second 50 years.

We do have a Gallery Manager in place and everyone feels it's a great fit. Tamara Ruge joins the great existing staff, Anes, Sheryl and Kirsten, who did a marvellous job keeping things going in the interim. Thank you.

Tamara comes with impressive retail, business and fine art qualifications but most of all she's a people person — warm, welcoming and consultative. Welcome Tamara.

A letter that went out last month to members with work in the Gallery was perhaps a little blunt and raised some alarm and concern. I want to assure everyone that not only are current proposals within existing Gallery guidelines, but also that the Gallery Committee has put in untold hours, sometimes with the help of professionals, investigating and analyzing the complexities of running the Gallery. I appreciate this is a sensitive issue. At the bottom line, it is a difficult retail climate and we are struggling to keep the doors open. The Gallery Committee values ideas, suggestions or concerns from members whether or not they sell in the Gallery, so please call one of them directly. See below for their names and telephone numbers.

It's not only ideas that help. Here are some ways to contribute:

1. Mug Wall is great! Keep mugs coming for sale and donation. (See Gallery Committee Report on Gallery lighting page 5.)
2. Give first class seconds to the Too Good for the Shard Pile sale at Lougheed Town Centre, April 17-19. Call Linda Doherty at 604.420.0415 to offer help or arrange drop off of any great seconds you have.
3. Attend the Annual General Meeting May 2 at Performance Works, 7:30pm.

There is an Interim Board now; at the AGM there will be a major election. In order to remain vital, the Guild and Board need new blood to bring new ideas and energy. Disgruntlement can be translated in to positive action!

There is a nominations committee. If you are willing to stand or you know of others who might, call me at 604.522.8803. One of the paybacks is the camaraderie and the great feeling you get from giving something back.

A major item at the AGM will be a proposed increase of membership fees. These have not changed for over 10 years and are seen as essential to getting us back to financial health. Proposed changes are individual \$50, student (full-time \$25, senior (over 65) \$30, family (\$70), institution/group \$100, and corporation \$100.

See you at the AGM or send in your proxy. A proxy form is enclosed in this newsletter.  
*Keith Rice-Jones* Interim President

### Gallery Committee

Maggi Kneer	604.929.3206
Jinny Whitehead	604.687.3590
Sheila Morissette	604.926.3154
Celia Rice-Jones	604.522.8803
Pia Sillem	604.736.0787

### Annual General Meeting

**Friday May 2 7:30PM**

**Performance Works**



**ClayLines**  
**Members' News**

**Shadbolt Centre for the Arts, Burnaby**

**Gala Fundraising Event**  
Thursday April 24

The bowls, created at the Bowl Throwing competition, March 22, will be sold at the Gala Fundraising event Thursday, April 24, at the Shadbolt Centre. Enjoy food prepared by Burnaby's top restaurants while participating in live and silent auctions. Proceeds are used to support Burnaby's Food First.

Tickets are \$45 and available through the Shadbolt Centre Box office. Phone 604.205.3000.

**Tozan, Nanaimo**  
**Preparing the Dragon**

On Sunday, March 16, Tozan volunteers finished preparing the kiln for its first firing this year and had a potluck to celebrate. They opened the doors and cleaned after the test fire, removed ash from the dogee, reset the grates, prepped the shelves and the area for pot intake. Did general site clean up and hopefully wood moving and side stoke splitting.

**Mark Your Calendar**  
**2003 firings in Ombu kiln**

Wood/soda firings in the Shadbolt Centre's OMBU kiln are scheduled for the following dates: May 30, July 18 and September 19.

Generally, firings take place Friday/Saturday with loading the Saturday prior and unloading the following Wednesday. Cost is \$120 for a 6 cubic foot space and may be purchased by an individual or a group.

For further information contact Sharon at 604.205.3012.

**Too Good for**  
**the Shard Pile Sale**

Lougheed Town Centre,  
9855 Austin, Burnaby  
April 17-19

It's time again to clear your shelves of unwanted pots for the Guild's popular fundraising Shard Sale. Pots may be dropped off at Studio 3, 360 W 1st Vancouver (please call ahead 604.708.3390) or the Shadbolt Centre for the Arts, Mather House, in Deer Lake Park, Monday to Wednesday from 11:00AM - 8:00PM.

Call Linda Doherty at 604.420.0415 for other times and locations or if you can volunteer to help.

The sale is at the Lougheed Town Centre, 9855 Austin, Burnaby, on Thursday through Saturday, April 17-19, during regular mall hours.

## Introducing **THE MAD POTTER** Clays of the Week



**Each week 3 different clays will be on sale at their  
100 Box price!**

*Check out the great savings!*

**That week's sale prices are effective from Tuesday at 10am to Saturday at 5pm**

**#6 - 3071 No. 5 Road, Richmond, BC (Near Bridgeport)**  
- Tel: 604.244.3734 Fax: 604.244.3757 -

**Store Hours: Tuesday to Friday 10 am to 7 pm and Saturday 10am to 5pm**  
**www.themadpotter.ca**

## Gallery of BC Ceramics

### Exhibitions

#### *Hazardous Attraction*

**Lewis Krzyckowski**

April 3 - 28 Opening Night Thursday, April 3, 6:00-8:00PM

Known for his fantastic effects with crystalline glazes, Lewis Krzyckowski mounts an entire show featuring this fascinating glazing technique. Crystalline glazes are produced through specific glaze formulation and carefully controlled firing procedures. Like a dust particle acting as the seed for a snowflake, portions of the glaze separate in an orderly manner, which then form crystals on the surface of the pots.

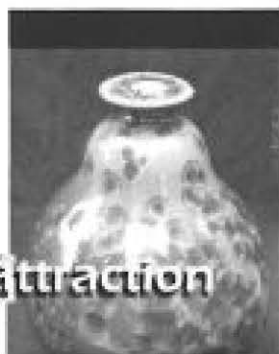
GBCC Presents **Lewis Krzyckowski**



Opening Reception  
6-8pm Thursday  
April 3rd, 2003

### **Hazardous Attraction**

show runs from  
April 3rd to 28th, 2003



#### **Rebecca Robbins**

May 1 - June 2 Opening Night Thursday, May 1, 6:00-8:00PM

Rebecca Robbins combines natural objects with social observations. Drawn to delicate forms and challenged by the intricacies within many natural forms, she finds inspiration from such unusual sources as microcosmic dust particles.

### Update on Gallery Lighting Project

The Gallery Committee has started to contact lighting experts and BC Hydro for proposals to improve the lighting in the Gallery and at the same time install energy saving bulbs to cut long-term hydro costs.

We are making great progress on raising funds for new lights. At the Trudy Golley workshop participants raised \$285, and January and February sales of donated mugs amounted to \$483. This means that we now have \$2,633 in the bank!

Special thanks to donors, Darrel Hancock, Judy Burke, Laurie Rolland, Pia Sillem, Lynne Johnson, Heather Cairns, Sue Griese, Sheila Morissette, Rachelle Chinnery, Markian Kyba, Stephen Plant, Jim Stamper and Maggi Kneer.

Our goal is to raise \$5,000 before we commence any work. So if you haven't already done so, why not drop off a few mugs for this project?

*Gallery Committee*

### **Ron Meyers Ceramic Workshop**

**Appliques, Drawing & Decorating**

**March 29-30 9:00AM - 4:00PM**

**\$115 (includes lunches)**

Ron Meyers' earthenware functional pots are made in a casual and spontaneous manner reflecting the juiciness of the material as well as the pleasure of the process. The coloured slip paintings that float on the surface integrate a gestural style while telling a story. He has an extensive history of professional activities within the ceramics community and was recently featured in the March 2002 issue of *Clay Times*.

Registration: Meira Mathison, Metchosin International Summer School of the Arts, 650 Pearson College Drive, Victoria, BC V9C 4H7, <missa@pearsoncollege.ca> or see [www.missa.ca](http://www.missa.ca) or 250-391-2420.

### **Western Woodfire with John Chalke**

Rocky Mountain Foothills, Alberta

August 2 - 9

Seven day intensive course. Fire a three chamber Japanese climbing kiln.

Enjoy wildlife, beauty, isolation, and woodsmoke.

Information: <johnchalke@telus.net >



Robin Stoke at John Chalke studio

### **Summer Pottery on Hornby Island**

with

**Masoud Zadeh**

5 day workshops

3 hours daily

June 25 - 29

July 23-27

August 13-17

Sept. 10-14

coil building/burnishing/  
smoke firing

5 students only, all levels

\$250 (materials & firings  
included)

### **Register & Information**

<masoududu@hotmail.com>

or

Masoud Zadeh

Hornby Island, BC, V0R 1Z0



# KELOWNA CLAY FESTIVAL

Okanagan University College, North Campus

August 22 & 23, 2003

**Demonstrations by regional & international  
clay artists:**

**Randy Brodnax** (USA) Building a cone 10 wood fire/raku kiln,  
throwing and demonstrating new surface decoration techniques

**Don Ellis** (USA) Throwing, raku and copper matte glaze techniques

**Cathy Jefferson** (BC) Throwing & altering salt glaze wares

**Les Manning** (Alberta) Throwing & altering stoneware & porcelain mix

**David Roberts** (Britain) Hand building, decorating and Raku firing

**Marcia Selsor** (USA) Architectural ceramics, decorating with latex resist

August 24

**Free Play in the Mud Fun Day** Demonstrations & hands-on mini  
workshops given by local clay artists for the public, including making  
an oxy-probe. Bring the kids!

Exhibition & Sale of presenters' works



Festival and workshops sponsored by

**The Okanagan Potters Association**

with the generous support of Greenbarn Potters Supply Ltd and Silk FM 101



**For information & registration**

Kelowna Clay Festival  
Glenmore PO Box 30025  
Kelowna, BC V1V 2M4

Tel. (250) 762-5837 FAX: (250) 868-3240

email: [kelownaclayfestival@hotmail.com](mailto:kelownaclayfestival@hotmail.com)  
[www.bobhamm-art.com/clayfest](http://www.bobhamm-art.com/clayfest)



## Pots in the Kitchen Event

with *Josie Walter*

Friday June 27, 7:00-10:00PM, Granville Island Hotel, Granville Island

Granville Island Hotel is graciously hosting this unique event. There will be an incredible array of appetizers to feast on and a no-host bar in a wonderful summer setting. English potter and author, Josie Walter, will present slides and sign her new book *Pots in the Kitchen*. There is a show featuring North American potters illustrated in her book. Come, enjoy and buy works by: Posey Bacopaulos, Sarah Coote, Linda Christianson, Trudy Golley, Cathi Jefferson, Meira Mathison, Linda McFarling, Jeff Oestreich, Will Ruggles, Douglass Rankin, Julia Galloway, and Josie Walter.

\$30 ticket includes

- appetizer dinner
- slide show
- opportunity to purchase fantastic pots
- raffle

Hurry! There's a limit of 80 people

Tickets at the Gallery of BC Ceramics  
604.669.5645 or ask your local guild.

### Josie Walter

#### *Techniques and Processes*

Over the past years I have experimented with combinations of paper resist, colour infill and slip trailing, first cutting and then tearing the paper to give a softer effect. I had felt that the surfaces I had been creating had become static and the colour too dense so I have been exploring the qualities inherent in my materials. Pouring the slips thinly to let the colour of the body through, or in overlapping layers, rather like frothy layers of spume rolling up the beach. The slip is also used very thick and applied whilst the pot is rotating on the wheel to give a 'wrapped' look.

At present I am using paper to mask an area to decorate, which gives a greater flexibility for variation and experimentation. Using the marks of a brush, highlighted with scraffito, creates a greater sense of movement and a fresh perspective. I am always on the look out for new brushes or a way of applying slip – my two favourites at the moment are a coarse pastry brush and another made from dried grass collected from the beach on Anglesey, North Wales.

I have also begun to decorate with coloured glazes, again both thinly and detail in thick, rather like applying watercolour, moving from light to dark. Recent work has been based on leaf motifs, very appropriate to the Derbyshire countryside where I live in England!  
*Josie Walter*

## For Sale

### Teaching/drop-in Studio

#### Profitable

### Great opportunity for pottery teacher(s)

### Fabulous waterfront location in Vancouver

### Call for more information

Ask for Dave  
604.270.4244

## Denys James Excursions presents travel experiences for 2003 & 2004 Turkey Thailand Italy

### Turkey

September 15 - October 6, 2003 21 days

Denys James and Erdogan Gulec  
Istanbul, Ankara, Cappadoccia  
Studio experience and tours



### Thailand

December 15, 2003 - January 3, 2004 18 Days

Denys James, Louis Katz, and Suwanee Natewong  
Tour of folk potteries, temples, traditional arts and crafts

### Tuscany, Italy

May 14 - 31, 2004 17 days

Denys James, Giovanni Cimatti, and Pietro Maddalena  
Studio experience, terra sigillata workshop with Italian master  
Tours of San Gimignano, Florence, Siena

New website with  
excursion details!

### Information and Registration

Denys James  
Phone 250.537.4906  
Website: [www.denysjames.com](http://www.denysjames.com)

## **Techno Tip**

### **Creating a Non-Glaze Ceramic Slip or Engobe**

by Tony Hansen

Non-glaze slips for pottery and tile decoration have long fostered great fascination. Almost everyone has marveled at the simple beauty of terra cotta ware decorated with white slip and finished with a transparent glaze. Many potters are adapting this age old process to stoneware and porcelain. Industry, especially the tile industry, routinely applies slips and engobes (e.g. white engobes are put on darker burning dry tiles before applying glaze over top). Slip recipes don't travel well at all and are often not well understood. Local materials are typically involved. Slips tend to be very body specific and there are different factors to consider depending on whether slips are applied to leather hard or dry ware: what temperature they are fired to, and what glaze and body they are paired with. The location-specific factors make it more practical, even necessary, to understand some simple principles and create or tune a slip to fit your purpose.

The major problem with slips is compatibility with the body. If the slip does not shrink at the correct rate or amount during drying and firing, then cracks will develop. No matter what logic or theory might indicate or what others might advise, if cracking is occurring then you need to react by adjusting the formulation of the slip in the right direction (or possibly adjusting the way the slip is prepared or applied). Different factors are involved in attaining compatibility for firing and drying and a change that improves one may also detrimentally affect the other.

At first, the ideal solution might seem to be a slip made from the same recipe as the body (with or without colourants). However you may not be able to achieve good fired adherence if the body does not vitrify well and it will not likely be possible to avoid drying cracks (e.g. slips contain much more water than the leather hard clays onto which they are applied so they will shrink more; slips need to shrink but the dry body onto which they are being applied has already shrunk).

#### **Adherence, Suspension, Hardness**

Non-glaze slips have physical working properties that determine how well they paint, dip or spray; how well they adhere;

how they drain after dipping; how fast they dry to reach the same water content as an underlying leather hard body; how thick they can be applied with each coat; whether double coats can be applied; how well they stay in suspension during storage; how much they tend to gel, etc.

- Normally the clay ingredients act to suspend non-plastic particles like frit, feldspar and silica. They impart adherence properties to the leather hard or dry clay surface and they harden the dry surface enough to withstand handling (a slip that dries hard resists smudging and smearing when pieces are handled; a soft one has a powdery unstable surface). Bentonite/smectite/hectorite type materials are the best suspending agents. Only 1-2% is sometimes needed and this has minimum impact on other properties, although drying time will slow and shrinkage will increase somewhat. Kaolins and ball clays will benefit best working properties and hardness, but they also increase drying shrinkage greatly. Organic gums and binders can also be used to improve hardening and adherence. They will also slow drying and may introduce glaze pinholing problems if too much is used as they generate gases of decomposition during firing.

#### **Fired Adherence**

- The fired slips layer may be either loosely or tightly bonded to the underlying body. A slip containing glassy fluxes that melt and flow will form an interface with the body to securely stick it on; one without can only hang on mechanically to any available surface irregularities. A vitreous body will also supply some glassy fluxes to adhere to a covering slip. If a slip is not glassy and the body is not vitreous then it is very important to make sure that the slip has the same fired shrinkage and thermal expansion as the body. Even slight differences can compromise the bond. It is simple to test the integrity of and chip resistance of the bond by applying a thick slip layer to a test tile.

#### **Dry Shrinkage**

- Slips exhibit drying shrinkage just like clay bodies. The drying and dry bond between slip and body is fragile at best.

- If it is being applied during leather hard stage, it is thus important that the slip shrink together with the body and at the same rate and magnitude.

- Conversely, if slip is being applied to dry ware it needs to shrink as little as possible. To achieve this, it will be necessary to either minimize clay content (especially fine grained clays), use low-shrinkage clay or clay-like minerals, or employ a portion of calcined clays. Kaolins shrink the least, ball clays much more. Kaolins are available in many ultimate particle sizes; the larger the size, the lower the shrinkage will be (and the less hard the dry glaze will be). Reducing drying shrinkage by the judicious choice of clay (vs. elimination of clay) is more likely to maintain fired compatibility. Organic binders can be employed to impart or augment hardening and adherence properties (again, if clay content is too low the slip may not be compatible with the fired body; some non-plastic or coarser particled clays should be used).

- Compatibility can be tested by simple observation. It is easy to tell the difference between slips that shell off because they shrink less (when being applied to leather hard body) or crack because they shrink more.

#### **Fired Shrinkage**

- Slips have a characteristic firing shrinkage just as a body does. Body and slip must shrink together during cooling in the kiln in a way that does not introduce tension that can weaken the slip body bond. Not only does the total shrinkage need to match, but the curves need to be very similar. Compatibility is simple to test, just apply a thick layer of slip on a flat smooth surface of the body; fire it, then try to chip it off. If it does come off, determine if the bond is the problem first. If not, then it needs to shrink more or less; adjust in the right direction and test again.

- The fired shrinkage of a slip can be increased by using more fluxes to impart greater vitrification or melting, or by using a finer particle sized clay. In many cases it is practical to make a pugged sample of the slip and make test bars for measuring the fired shrinkage.



## Techno Tip

### Creating a Non-Glaze Ceramic Slip or Engobe

by Tony Hansen

#### Thermal Expansion

- To function together as a fired object body and slip must have a similar thermal expansion. This means that when the object is heated or cooled quickly during use the minute amount of expansion and contraction that occurs must be similar in slip and body. The covering slip on a ceramic piece is a separate entity and has its own coefficient of thermal expansion independent from the underlying body. If sufficient incompatibility exists, sudden heating or cooling will overcome the slip body bond and the slip can flake off.

- If a glaze is applied over a slip it is a more complex situation. The slip is acting as a buffer layer and it must be expansion compatible with both the underlying body and the overlying glaze. Normally it is best to adapt the glaze to the body first and test it well to assure compatibility. Work on adapting the intermediate slip layer can then proceed on the assumption that body and glaze are already matched. However note that glazes normally need to be under compression to achieve fit and an intermediate layer will have to be well adhered to the body to hang on despite compressive forces from the overlying glaze.

#### Other Factors

- Slips should exhibit a degree of maturity or vitrification in keeping with their intended surface character. While slip-glazes melt like normal glazes, non-glaze slips normally have the flux content tuned to develop a surface character somewhere between body and glaze. As noted above, a slip that is more vitreous than the underlying clay body will adhere better.

- Slips develop characteristic fired surface qualities. They can be smooth, silky, glassy, textured, dry, stippled, etc. You control this by the degree of melt, slip makeup and application methods.

- A slip's flow characteristics, water content, stickiness, gelling properties, and drying speed enhance or degrade its application properties (therefore ware quality).

As noted, the above factors can be divided between physical and fired considerations. If you need a slip for a particular body, the

first step is to determine its purpose, then propose a simple recipe and begin testing. It is usually best to concentrate on matching physical properties first, then fired, then come back to fine tune physical again.

Let's make a slip for dipping and painting on leather hard stoneware surfaces that may or may not be glazed over. We need good covering power to hide dark brown body color where necessary and the surface should have just a slight sheen so that it gives a pleasant feel to the touch.

#### A Slip Recipe for Cone 10

The most fired compatible slip would obviously be the body itself made into a slip, however this is not the case for drying compatibility. We can view a basic slip as a mix of clays with enough feldspar to impart the necessary maturity and the rest filled out by silica. The real trick is to choose the right mix of clays (e.g. ball clay, kaolin, bentonite) to provide a drying-shrinkage compatible material. Here is what I would start with:

##### *30-35% feldspar or Nepheline Syenite*

This is more feldspar than a porcelain body would have and will thus provide adequate melting to produce a surface having a slight sheen. For a cone 6 slip, this would need to be about 50% or more if no boron frit is used.

##### *1-2% 325 mesh Bentonite*

This will help harden the dry surface to make it resistant to smudging during handling. Bentonite has an incredibly small particle size and it is very effective to increase drying shrinkage, suspend the slurry, and harden the dry surface. This small amount will not impact fired properties. This ingredient can be reduced or increased to allow easy day-to-day fine tuning to compensate for tendencies to flake or shrink off.

##### *20-25% Ball Clay*

This will have the biggest single effect on the slip's physical properties. It will suspend and harden it and give it a sticky nature. It will, however, move the colour toward off white since it contains some iron impurities.

##### *20-25% Kaolin*

Its larger particle size will complement the ball clay well and impart a creamy texture to the slurry. The two materials together can be thought of as the 'clay complement'. Their amounts can be traded off one against the other to tune the slips physical properties during development. Plastic, non-plastic, and calcined kaolins are available to give you considerable control over the slip's hardness, suspension, and shrinkage properties without impacting fired results.

##### *20% Silica*

This is a filler and helps to give the slip thermal expansion properties more compatible with typical bodies that contain lots of silica. If glazes tend to craze over, the slip or the slip weakens the body; flint is important.

##### *5% Zircopax*

This will help give the slip extra whiteness and opacity so that it covers well. Its fine particle size will enhance the slip's creaminess and working properties.

##### *.5% Gum*

This will impart extra dry hardness or make it paint better (but it will slow down drying).

To challenge the slip-body bond, apply a thick layer of the slip to the side of some test pieces that are at the correct stage. Allow to dry. If the slip shrinks more than the body and forms little islands with curled up edges, then it's too plastic (take out some bentonite or trade off some plastic clay for less plastic). If the slip has not shrunk, attempt to scrape it off with a knife. If it falls away easily, it is not shrinking as much as the body (add bentonite or trade off a less plastic clay for a more plastic one).

Next, fire the ware and break it into small pieces. Examine shards closely to see if the slip is flaking off. If it is, add more feldspar to develop a better slip-body interface or try to match the body's firing shrinkage patterns better by adjusting the kaolin-ball clay mix up and down.

Techno Tip continued on page 11

## Judi Dyelle

*continued from page 1*

Another area of inspiration has been from my collection of old fabrics, both Oriental and Western. I produce a series of work that is pierced in a variety of patterns and cut-outs reminiscent of eyelet or lace. I use a crystalline glaze to enhance the open areas and to give a sense of delicacy.

A couple of years ago I had the opportunity to travel to Korea as an invited participant in a ceramics festival. To be able to go to the country that is Queen of the celadons was for me an amazing experience. Again, here were all those pots that I had known in books, now just inches away from my nose. Room after room of incredible pieces rekindled my interest in working with celadon glazes. It took me about a year to develop the ones that I was looking for and I now have two glazes that I am happy with. One is a carbon trapping, crackle celadon and the other is a beautiful soft turquoise with small bubbles. Normally I make my own porcelain but I am using the

celadon glazes on commercially made porcelain because of its wonderful translucency.

Form is the underlying factor in my work, whether it is handbuilt, wheel thrown or a combination of the two. The finishing process of glaze, slip or firing is an embellishment to it.

Through my research into ancient cultures and the inspiration that I draw from them, I hope that the work I do will have a timeless quality to it.

*Judi Dyelle*

**Judi Dyelle Vase, Celadon Series 2002,** wheel thrown, carved flowers, reduction, high fire porcelain, propane gas kiln, cone 10 (1305°C), 25.1 cm H x 9.0 cm W. Photo: Janet Dwyer



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## Techno Tip Creating a Non-Glaze Ceramic Slip or Engobe

*continued from page 9*

### A Few General Notes About Using Slip

- Slips are more opaque than glazes and have great 'hiding power' (even in a very thin layer) that enables them to cover the body and mask its colour and surface character. This hiding includes smoothing an otherwise rough or coarse surface, obscuring an undesired colour, hiding specks and surface imperfections (like those caused by iron impurities), tightening and sealing an otherwise porous and soft surface, and providing a whiter surface to brighten glaze colours. However a slip will not prevent the deposit of soluble salts (from the body) on its surface as water evaporates and leaves them behind.

- While slips can act as mediums for stains and metal oxide colours most stains do not develop their colour well in slips because of the lack of a glassy phase. Colour is often a matter of chemistry and interaction between glaze and colourant but since slips do not melt as much so the chemistry does not happen as spontaneously. Since body compatibility concerns are so complex with slips there is often not enough flexibility to adjust chemistry for stain compatibility. A simple solution is sometimes available: use a body stain. Chemically incompatible slip-colour combinations can be forced into working by saturating the slip with colour, but this can be expensive (and makes little sense when a slip recipe change would be more effective). Another aspect to consider is that since slips are opaque the only stain particles that influence colour are those exposed at the surface (this is a waste of money).

- If you have the facilities to slurry and dewater a small amount of the slip and make dry and fired shrinkage test bars, this is an excellent idea. This way you can compare the figures directly. I have found that slips with 1-2% less drying shrinkage than the body function well.

- As noted, it is difficult enough to get glazes to fit properly on a clay, but putting a slip of unknown thermal and fired shrinkage properties between a glaze and clay could open a real 'Pandora's box' for you.

If you are determined to make it succeed, test the glaze fit on the body first (by hot water/ice water immersion cycling to reveal crazing or shivering or by comparing the fired strength of glazed bars with that of unglazed bars). Adjust the glaze if necessary and repeat. Next, match the slip to the body and do adhesion and shattering tests to be sure there is a good fired bond. Finally, test the combination as you did the glaze alone.

- The body surface needs some roughness to give the slip a place to grab on to. Additionally, contact between the body and the liquid phase of the slip is important to establish a good initial bond (take this into account when spraying). If you would like a very creamy texture, consider ball milling the slip thoroughly.

- Slip formulation is normally done on the recipe level. Ceramic calculations are not really applicable because non-glaze slips

don't melt.

- However, be careful about putting metal oxides in slips that will be exposed to food or drink. The metals will leach out more readily than with a glaze since oxide particles are not dissolved into a glassy matrix.

Creating your own slip is not really all that difficult, but it will take time, determination, and a methodical approach with plenty of testing. Like glazes, it is far better to have one slip you understand and control than mess around with ten that you don't understand and don't work.

*Tony Hansen*

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